

African-Americans and Asthma in Missouri

Asthma is a serious health condition that has underlying inflammation and swelling of the airways leading to episodes of coughing, wheezing, chest tightness and mild to severe respiratory distress. African-Americans in Missouri are at an increased risk of emergency department (ED) visits, hospitalizations, and deaths due to asthma compared to whites. This disparity is noteworthy, because African-American adults and children not only suffer disproportionately, but many exacerbations that are costly in terms of health and care utilization are preventable. While the specific immunologic, genetic and environmental causes for asthma are complex and much remains unknown, particularly regarding its increased prevalence among African-Americans, many prenatal, childhood and occupational risks such as exposure to tobacco smoke and viral respiratory tract illness early in life have been identified and steps can be taken to reduce.^{1,2,3} Implementation of effective measures to impact disparities in asthma control are ongoing: including increased monitoring and assessment, access to quality care, widespread implementation of the clinical practice guidelines, reducing environmental triggers, self-management education and improving care coordination and medication adherence.^{4,5,6}

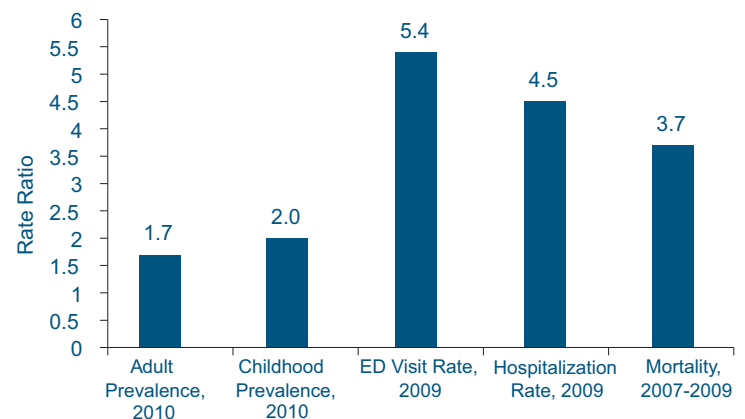
However, for planning and resource deployment toward reducing disparities and achieving health outcomes, it is important to look at which groups within the African-American population in Missouri are most affected by asthma as measured by ED visit rates, hospitalizations, and deaths due to asthma. The factors examined are age, gender and geographic area for the most recent available years of data.

THE DISPARITY

- **Figure 1** uses rate ratios to show how many times higher African-American rates were than white rates for asthma prevalence, ED visits, hospitalizations and deaths for the most recent available year(s) of data.
- Current asthma prevalence among adults was about 67.1 percent higher among African-Americans than whites in 2010 and among African-American children was almost twice that of white children.
 - Prevalence of current asthma among adults age 18 years and older in 2010 was 13.7 percent (95% confidence interval [CI] 8.4% - 19.0%) among African-Americans and 8.2 percent (95% CI 6.9% - 9.4%) among whites.⁷
 - Prevalence of current asthma among children age 17 years and younger in 2010 was 18.5 percent (9.2% - 27.8%) among African-Americans and 9.3 percent (6.8% - 11.7%) among whites.⁷
- The age-adjusted asthma ED visit rate was more than five times higher among African-Americans than whites in 2009.
 - The difference in asthma ED visit rates between African-Americans and whites was statistically significant.
 - African-Americans made up 11.9 percent of Missouri's population in 2009, but accounted for over 43.7 percent of all ED visits due to asthma.⁸
- The age-adjusted asthma hospitalization rate was more than four times higher among African-Americans than whites in 2009.

- The difference in asthma hospitalization rates between African-Americans and whites was statistically significant.
- African-Americans made up 11.9 percent of Missouri's population in 2009, but accounted for over 36.6 percent of all hospitalizations due to asthma.⁸
- The age-adjusted asthma mortality rates were nearly four times higher among African-Americans than whites during the period 2007-2009.
 - The difference in asthma death rates between African-Americans and whites was statistically significant.
 - African-Americans made up 11.9 percent of Missouri's population in the years 2007 through 2009, but accounted for nearly 30.1 percent of all deaths due to asthma.

Figure 1. Rate ratios of asthma and health care utilization for African-Americans compared to whites, Missouri



Asthma Among African-Americans in Missouri

The following describes which populations within the African-American community are affected by asthma the most.

ASTHMA PREVALENCE

- Based on 2010 estimates, approximately 100,000 African-American adults and children are currently living with asthma in Missouri.⁹

ASTHMA EMERGENCY DEPARTMENT (ED) VISITS

- In 2009, there were 12,825 ED visits due to asthma among African-Americans, which accounted for 43.7 percent of total asthma ED visits.
- The age-adjusted asthma ED visit rate was higher among male African-Americans than female African-Americans but the difference was not significant (Table 1).
- When asthma ED visits among male and female African-Americans are compared by age group, differences were observed (Figure 2).
 - Asthma ED visit rates were higher among males under 15 years of age than females of the same age; these differences were statistically significant.
 - Asthma ED visit rates were higher among females 15 years of age and older, but these differences were statistically significant only for those 25 to 64 years of age.
- Figure 2 also shows that asthma ED visit rates were highest among young children of both sexes and decreased as age increased.

ASTHMA HOSPITALIZATIONS

- In 2009, there were 2,961 asthma hospitalizations among African-Americans in Missouri, which accounted for 36.6 percent of total asthma hospitalizations.
- The age-adjusted asthma hospitalization rate was higher among female African-Americans than male African-Americans (Table 2).
- When asthma hospitalizations among male and female African-Americans are compared by age group, differences were observed (Figure 3).
 - Asthma hospitalization rates were significantly higher among males younger than 15 years of age than females of the same age.
 - Asthma hospitalization rates were higher among females 15 years of age and older; these differences were significant among those 25 years and older.

- Figure 3 also shows that asthma hospitalization rates were highest among younger individuals, but were also elevated among African-Americans 35 and older, especially among females.
- Asthma led to 7,069 days of hospital care among African-Americans in 2009, which accounted for 31.7 percent of total days of asthma hospital care.
- \$32.3 million in hospital charges were attributed to asthma among African-Americans in 2009, which accounted for 33.6 percent of total asthma hospital charges.
- Mo HealthNet (Medicaid) was cited as the pay source for 42.8 percent of the hospital charges among African-Americans.

Table 1. Asthma emergency department visits by gender among African-Americans, Missouri, 2009

| Gender | Number | Rate * | 95% CI** |
|------------|--------|--------|---------------|
| Male | 6,534 | 16.8 | (16.4 - 17.2) |
| Female | 6,291 | 16.1 | (15.7 - 16.5) |
| Both Sexes | 12,825 | 16.6 | (16.3 - 16.9) |

*Age-adjusted using the 2000 U.S. standard population; rate per 1,000

**Confidence Interval

*100,000
African-Americans are
currently living with
asthma
in Missouri*

(See Table 2 and Figures 2 and 3 on page 3.)



Figure 2. Age-specific asthma emergency department rates by gender among African-Americans, Missouri, 2009

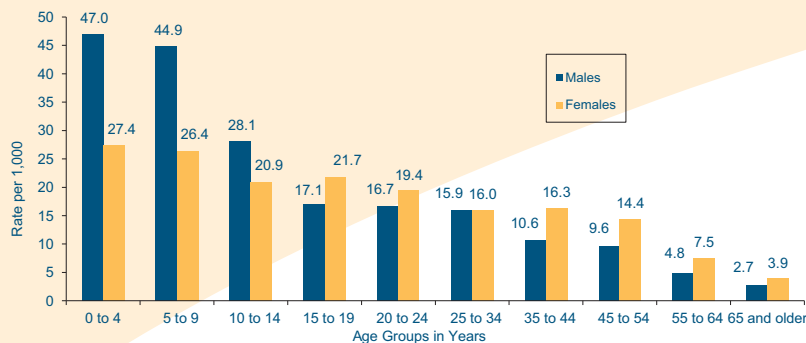


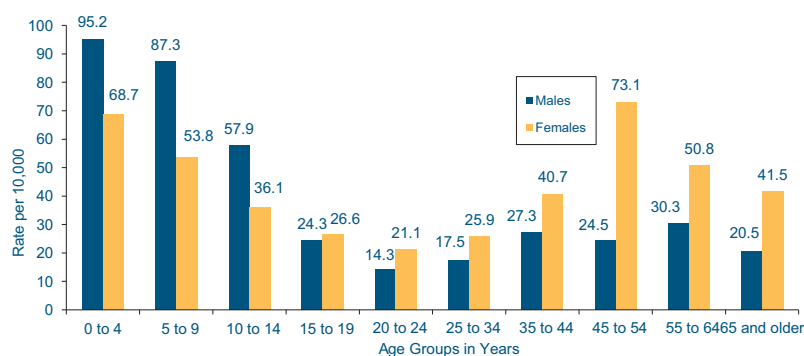
Table 2. Asthma hospitalizations by gender among African-Americans, Missouri, 2009

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| Female | 6,291 | 16.1 | (15.7 - 16.5) |
| Both Sexes | 12,825 | 16.6 | (16.3 - 16.9) |

*Age-adjusted using the 2000 U.S. standard population; rate per 10,000

**Confidence Interval

Figure 3. Age specific asthma hospitalization rates by gender among African-Americans, Missouri, 2009



ASTHMA DEATHS

- During the period 1999-2009, there were 236 deaths due to asthma among African-Americans in Missouri.
- Asthma death rates were similar for male and female African-Americans during the period 1999-2009, 3.6 versus 3.4 per 100,000 population respectively.
- Among African-Americans, mortality rates were highest for those 65 years of age and older in 1999-2009.

*236 deaths due to
asthma among
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from 1999-2009*



Geographic Areas of Interest

Certain areas of Missouri have concentrated populations of African-American residents. Combined, the African-American residents of the Bootheel, St. Louis City, and Kansas City represent about half of Missouri's entire African-American population.

THE BOOTHEEL

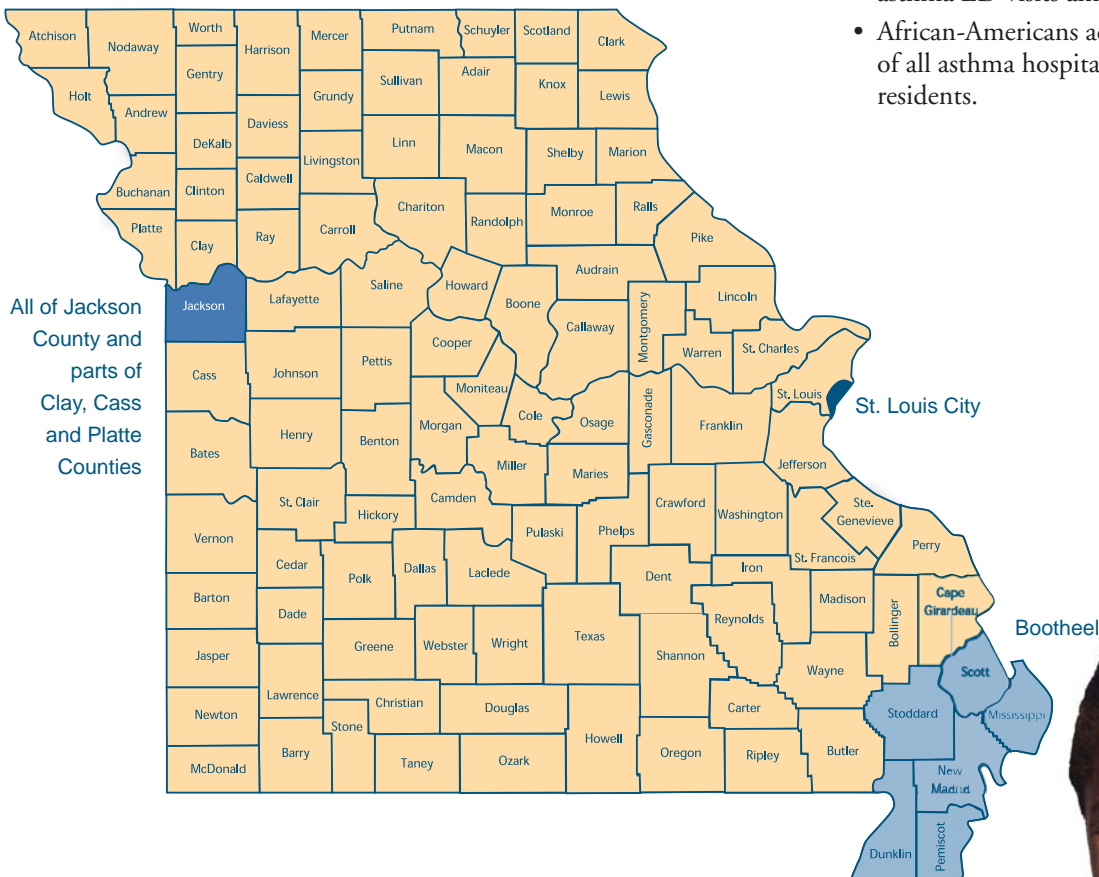
- The Bootheel is a six-county area in southeast Missouri that includes the following counties: Dunklin, Mississippi, New Madrid, Pemiscot, Scott and Stoddard.
- According to 2009 population estimates, African-Americans made up 12 percent of the Bootheel's population; however, some counties in the Bootheel have greater proportions of African-Americans in their populations.¹⁰
 - African-Americans make up 20 percent of Mississippi County residents, 15 percent of New Madrid County, and 25 percent of Pemiscot County.
- Although African-Americans made up 12 percent of the Bootheel's population, they accounted for 45 percent of all the asthma ED visits and 34 percent of the asthma hospitalizations for residents of this region.

ST. LOUIS CITY

- According to 2009 population estimates, African-Americans made up 48 percent of St. Louis City's population.¹⁰ However:
 - African-Americans accounted for 86 percent of all asthma ED visits among St. Louis City residents.
 - African-Americans accounted for about 84 percent of all asthma hospitalizations among St. Louis City residents.

KANSAS CITY REGION

- Kansas City encompasses all of Jackson, and parts of Clay, Cass and Platte counties in Missouri.
- According to 2009 population estimates, African-Americans made up 31 percent of Kansas City's population.⁸ However:
 - African-Americans accounted for over 68 percent of all asthma ED visits among Kansas City residents.
 - African-Americans accounted for about 67 percent of all asthma hospitalizations among Kansas City residents.



STRATEGIES

- Since the specific cause of asthma remains unknown, long-term management and control includes four components.
 1. Regularly visit a health professional for assessment of asthma severity and to monitor control.
 2. Proper inhalation technique, daily control medication and early symptom recognition.
 3. Reduce exposure to triggers, particularly in the home and other places where people spend large amounts of time.
 4. Appropriate medication and delivery device – treatment of intermittent asthma often requires only short-acting medication (beta2-agonist) for symptom control; however, the preferred treatment for persistent asthma includes inhaled corticosteroids with correct use of medication delivery devices.
- Identification and treatment of other existing health conditions such as sinusitis, obesity, gastroesophageal reflux disease and obstructive sleep apnea may improve the overall control of asthma and lessen requirements for asthma medication.
- Maintain a written asthma action plan.

GLOSSARY

Asthma: A chronic, inflammatory disease of the airways of the lungs. Inflammation and swelling cause the airways to narrow. There is also an increase in mucus further narrowing the airways of the lungs making it difficult to breathe.

Chronic Disease: A disease that lasts for years. A chronic disease like asthma has no cure, but can be controlled.

Confidence Intervals: A range of values, calculated from the sample observations that include the true value. For prevalence, the 95 percent CI will include the true rate 95 percent of the time, if the samples and calculations are repeated many times. The end points of the CI are called the Confidence Limits.

Asthma Control: Comprised of two parts - reduced impairment (prevent chronic symptoms, require infrequent use of short-acting relief medication, maintain normal lung function and activity levels, and meet expectations of and satisfaction with asthma care) and reduced risk (prevent recurrent attacks, minimize the need for emergency department visits or hospitalizations, prevent loss of lung function, or for children, prevent reduced lung growth and provide medication with optimal benefits and minimal or no adverse effects).

Delivery Devices: Equipment or dispensers that help get medication to the lungs.

Disabling Asthma: A long-term reduction in the ability to participate in usual activities, such as attending school or work or engaging in play or recreation, due to asthma.

Inhalation Technique: Proper way and speed to breathe in medication to maximize delivery to the lungs and gain benefit.

Morbidity: Refers to illness, disability or poor health due to any cause.

Mortality: Death.

Prevalence: Number of existing cases of a disease during a certain time period in a specified population.

Triggers: Things that can bring on symptoms of asthma. Triggers are different for different people. Common asthma triggers include: cigarette smoke, cats, mold, mildew, dust mites, roaches or ragweed. Other common triggers are colds and flu, exercise, strong emotions, cold air, beer, wine, change in weather and some medication.

Wheeze: Difficulty breathing causing a whistling sound; often associated with chest tightness.

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